ON SOME NEGLECTED GENERA OF FISHES.

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Dr. Charles W. Richmond recently purchased a serial in twelve volumes entitled Magazin für das Neueste aus der Physik und Naturgeschichte, published in Gotha from 1781 to 1799, and kindly called my attention to it. In the sixth volume (3. Stück, pp. 28–38) for 1790 is an outline of a division of fishes according to their teeth (Versuch einer Eintheilung der Fische nach den Zähnen) by Heinr[ich] Fr[iedrich] Linck, in which several generic names are proposed which take precedence of some in general use, but happily do not otherwise seriously disturb the nomenclature. Linck is only known by the article in question, which is duly recorded in the Bibliotheca Zoologica of Carus and Engelmann (p. 971), and by a prize writing: De analysi urinæ et origine calculi, referred to by the editor of the Magazin.

As the magazine is very rare, an outline of the classification seems to be desirable, although there is nothing of value in it and characters are often erroneously given and misapplied.

CLASSIFICATION.

1. Ordnung. Zähne in beiden kinladen [sic!] allein, ohne Unterschied der Vorder- und Backenzähne.
   a. Ohne Kiemendeckel.
      Squalus, Mustelus (p. 31), Pristis (p. 31), Raja, Rhinobatos (p. 32).
   b. Mit Kiemendeckeln.
      Blennius, Cobitis, Callichthys (Silurus Linn.), Caepala [=Cepola], Teuthys [=Teuthis], Zeus, Pleuronectes, Chaetodon, Acanthurus, Gasterosteus, Exocoetus, Sternoptyx.
2. Zähne in den Kinnladen und im Gaumen, Vorder- und Backenzähne sind nicht verschieden (p. 33).
   Muraena, Gymnotus, Silurus, Trachinus, Cottus, Amia, Polynemus, etc., etc.

3. Zähne in den Kinnladen, auf der Zunge und im Gaumen. Vorder- und Backenzähne sind nicht verschieden (p. 34).
   Lophius, Uranoscopus, Salmo, Esox, etc., etc.
4. Zähne in den Kinnladen und im Gaumen. Die Vorderzähne sind von den Backenzähnen verschieden (p. 35).
   Anarrchichas [Anarrhichas], Sparus, Labrus, Perca.
5. Zähne in den Kinnladen allein. Die Vorderzähne sind von den Backenzähnen verschieden.
   Chimaera, Balistes, Ostracion, Mormyrus, Trichiurus?
6. Zähne in den Kinnladen und den Lippen (p. 36).
   Atherina.
7. Zähne in den Lippen und auf der Zunge.
   Petromyzon.
8. Zähne in der Oberkinnlade allein.
   Pegasus.
9. Keine Zähne.
   A. Das Maul ist in einen langen Rüssel vergezogen.
      Xiphias, Acipenses [Acipenser], Syngnatus [Syngnathus], Centriscus, Fistularia, Loricaria (p. 37).
   B. Vorstehende knöcherne Kinnladen. Keine oder doch unmerkbare schuppen.
      Diodon, Tetradon [Tetraodon], Mola.
   C. Vorstehende Kinnlade. Schüppen (p. 38).
      Soarus. Gehört zur 4ten Abtheilung.
   D. Keine vorstehende Kinnladen. Unmerkbare Schuppen.
      Ammadytes [Ammodytes].
   E. Nicht hervorstehende Kinnladen. Deutliche Schuppen.
      "Muraena (Salmo Linn.) Cyprinus." [Sic!]

Enough has been given to show the erroneous and worthless character of the author's views. The new genera, however, demand further attention. The punctuation, or want of it, is reproduced from the original.

NEW GENERA.

1. Mustelus. "Stumpfe Zähne ein rundlicher Körper M. lævis (Squalus Mustelus Linn.) Unterscheiden sich von dem vorigen Geschlecht [*Squalus*] doch sehr dadurch, dass sie weniger gefrässig sind, sich mehr von vegetabilien nähren, und eine mehr glatte Haut haben."

The name is thus accompanied by a good diagnosis and typonym and consequently is well entitled to place instead of *Mustelus* of Cuvier or *Galeus* of Rafinesque. The genus *Mustelus*, as understood by Jordan and typified by "*Mustelus canis*," is thus bereft of a name and may take that of Cynias.

2. Pristis. "Das Maul ist in eine Säge vergezogen," etc.

Squalus pristis is specified as the representative of the genus. The genus is thus well defined, has a typonym, and the name, being long anterior to Shaw's, must be accredited to Linck.

3. Rhinobatos. "Stumpfe Zähne, Platter Körper."

This name is long prior to *Rhinobatus* of Bloch and Schneider (1801), but is not accompanied by a full definition or a typonym. Happily this is not of much consequence, the names being essentially similar, and different authors may exercise their preference of authorities without difference of result.

4. Callichthys (Silurus Linn.). The meaning of this association of names is not evident, although the natural inference would be that *Callichthys* was proposed at the expense of *Silurus* of Linnæus. At any rate, it does not militate against the restriction of *Callichthys* to the genus generally known by that name, and was, indeed, probably intended for that genus.

5. Cobitis. This name stands out without any qualification as that of a fish with uniform teeth in both jaws. Linck, consequently, must have intended to restrict the name to *Anableps*, and did remove the *Cobitis barbatula* and *tænia* from the Linnæan genus to constitute a new one (*Barbatula*) on a later page (38). He referred to the "*Cobitis* [*Cobitis*] *heteroclita*" of Linnæus as a fish of uncertain relationship. ("Ungewisse Stellen haben Blennius Cornutus Cabitis heteroclita, Chaetodon Ciliaris, Gasterosteus ovatus" (p. 33).

6. Alosa.

7. Thymallus.

Linck, in a paragraph under section 3, remarks that *Alosa* has no lingual teeth, and that *Thymallus* differs somewhat from *Salmo*, but does not say, in so many words, that they are distinct generically. The paragraph is reproduced from p. 35 to enable anyone to judge for himself.

Das Geschlecht Clupea ist noch nicht genau bestimmt, die meisten haben im Gaumen kleine Zähne. Alosa hat keine Zähne auf der Zunge. Sie sind keine Raubthiere. Thymallus weicht etwas von Salmo ab. Sie hat nur wenig Zähne im Gaumen, und zuweilen ein paar auf der Zunge. Auch ist sie kein Raubfisch.

This seems scarcely sufficient to entitle Linck to recognition as the responsible authority for the generic names.

8. Mola. "Mola est zu sehr durch die körperform verschieden, als dass das Geschlecht könnte unter Tetradon [Tetraodon] stehen."

Mola is thus sufficiently named and differentiated from *Tetraodon*, but fortunately there need only be a change of authority for the genus—Linck (1790), instead of Cuvier (1798).

9. Soarus. This name, already referred to (p. 960), is not presented in a form sufficiently precise to require attention or to entitle it to

precedence over any other name. Indeed, it is very uncertain what was intended by the name. It was probably a misprint for *Saurus*. Now there are four well-known fishes with which the name of *saurus* has been associated—*Elops saurus*, *Synodus saurus*, *Scomberesox saurus*, and *Trachurus trachurus*. None of these is destitute of teeth, though the *Scomberesox saurus* has extremely small ones, the jaws are much produced, and the lower one is considerably longer than the upper. It is probable, therefore, that Linck had that species in view when he named the genus *Soarus*, but, of course, the name has no right of way over *Scomberesox*.

10. Barbatula. "Hieher gehören Cobitis Barbatula Taenia. Sie nähern sich Cobitis sehr."

This, a synonym of *Cobitis* in a wide sense, is left after the elimination of *Cobitis anableps* and *C. heteroclitus* from the ill-defined Linnæan genus.

Of the nine new generic names proposed by Linck, three are well entitled to adoption from him, *Mustelus*, *Pristis*, and *Mola*. The others do not seem to be presented in such form as to demand recognition; they are *Rhinobatos*, *Cullichthys*, *Alosa*, *Thymallus*, *Soarus*, and *Barbatula*.